

A1 having a lower mass density zone at the inner wall surface and a higher mass density zone at the outer wall surface.

A2
C1 15. (Amended) A membrane for being implanted in a patient's blood vessel for carrying out *in-vivo* plasmapheresis or *in-vivo* ultrafiltration comprising a plurality of elongated hollow porous fibers each fiber having an outer wall surface for being exposed to whole blood and an interior lumen extending along the length thereof and defined by an inner wall surface for separating blood plasma and/or plasma components from whole blood by passing the plasma and/or components through the fiber wall from the outer wall surface to the interior lumen, wherein the morphology of said fiber wall is asymmetrical between said inner wall surface and the fiber outer wall surface, said fiber wall characterized by having a higher mass density adjacent to the outer wall surface and a lower mass density adjacent to said inner wall surface, and wherein the fiber wall structure comprises a continuum of change in mass density from the outer wall surface to the inner wall surface.

30. (Amended) A method of carrying out *in-vivo* plasmapheresis an/or *in-vivo* ultrafiltration of a patient's blood, comprising:

A3
C1 implanting a filter device within a blood vessel of a patient, said filter device comprising a plurality of elongated hollow fibers each fiber having an outer wall and interior lumen extending along the length thereof, said fiber wall having an asymmetrical pore size and asymmetrical mass density morphology between inner and outer fiber wall surfaces wherein the mass density adjacent to said outer wall is greater than the mass density adjacent to said inner wall, and passing blood plasma and toxins through said fiber wall from the outer wall surface to said interior lumen and directing said blood plasma and toxins from the patient through said interior lumen.

C1
A4 32. (Amended) A method of carrying out *in vivo* plasmapheresis and/or *in-vivo* ultrafiltration of a patient's blood, comprising:

implanting a filter device within a blood vessel of a patient, said filter device comprising a plurality of elongated hollow fibers each fiber having an outer wall an interior lumen extending along the length thereof and a fiber wall having a plurality of zones between the inner and outer